Hawley's

Condensed Chemical

Dictionary

TWELFTH EDITION

Revised by

Richard J. Lewis, Sr.

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soluble in water, insoluble in alcohol, a pure form of sodium carbonate (soda ash).
Use: Washing textiles, bleaching linen and cotton, general cleanser.

salt. (1) The compound formed when the hydrogen of an acid is replaced by a metal or its equivalent (e.g., an NH_4^+ radical). Example:
$HCl + NaOH \rightarrow NaCl + H_2O$.
This is typical of the general rule that the reaction of an acid and a base yields a salt and water. Most inorganic salts ionize in water solution.
(2) Common salt, sodium chloride, occurs widely in nature, both as deposits left by ancient seas and in the ocean, where its average concentration is 2.6%.
See sodium chloride. See also soap.

salt bath. A molten mixture of sodium, potassium, barium, and calcium chlorides or nitrates, to which sodium carbonate and sodium cyanide are sometimes added. Used for hardening and tempering of metals and for annealing both ferrous and nonferrous metals. Temperatures used may be as high as 1315C for hardening high-speed steels. Commercial mixtures are available for a variety of specifications.
See also fused salt.

salt cake. Impure sodium sulfate (90–99%).
Properties: For properties and derivation, see sodium sulfate.
Grade: Technical, glassmakers' (iron-free).
Use: Paper pulp, detergents and soaps, plate and window glass, sodium salts, ceramic glazes, dyes.
See sodium sulfate.

salt, fused. See fused salt.

salting out. Reduction in the water-solubility of an organic solid or liquid by adding a salt (usually sodium chloride) to an aqueous solution of the substance. Ions of the dissolved salt attract and hold water molecules, thus making them less free to react with the solute. The result of this is to decrease the solublility of the solute molecules with consequent separation or precipitation. Colloidal suspensions of proteins, soaps, and similar substances are precipitated in this way.

salt, molten. See fused salt.

salt of tartar. See acid potassium tartrate.

saltpeter. See niter, potassium nitrate.

salt, rock. See sodium chloride.

salvarsan. (dihydroxydiaminoarsenobenzene dihydrochloride). $C_{12}H_{14}O_2N_2Cl_2As_2 \cdot 2H_2O$.
Use: To treat syphilis.

salvia oil. The Dalmatian variety of sage oil.

samarium. CAS: 7440-19-9. Sm. A rare-earth metal of the lanthanide group (group IIIB of the periodic table); atomic number 62; aw 150.4; valences = 2, 3; seven stable isotopes.
Properties: Hard, brittle metal that quickly develops an oxide film in air. An active reducing agent. Ignites at 150C, liberates hydrogen from water, d 7.53, mp 1072C, bp 1900C, hardness similar to iron, high neutron absorption capacity. Combustible.
Occurrence: Australia, Brazil, Southeastern U.S., South Africa; also from bastnasite ore in California.
Derivation: Reduction of the oxide with barium or lanthanum.
Use: Neutron absorber, dopant for laser crystals, metallurgical research, permanent magnets.

samarium chloride. $SmCl_3 \cdot 6H_2O$.
Properties: Faintly yellow, hygroscopic crystals; d 2.383. Loses $5H_2O$ at 110C, soluble in water.
Derivation: By treating the carbonate or oxide with hydrochloric acid.

samarium oxide. Sm_2O_3.
Properties: Cream-colored powder, d 8.347, mp 2300C, insoluble in water, soluble in acids, absorbs moisture and carbon dioxide from the air.
Use: Catalyst in the dehydrogenation of ethanol, infrared-absorbing glass, neutron absorber, preparation of samarium salts.

sampling. The methods and the techniques used in obtaining representative test samples of quantity lots of raw materials, semiprocessed work, and finished product for production and quality control. Rules for sampling procedures for both solid and liquid materials have been established by the National Cottonseed Products Association, Memphis, TN, and by the National Institute of Oilseed Products, San Francisco, CA. The techniques of physical sampling are one application of statistical quality control.

SAN. Abbreviation for styrene-acrylonitrile polymer.
See polystyrene.

sand. Sediment particulates ranging in size from 1/16 to two millimeters.
See silica.

sandalwood oil. (santal oil). A pale yellow, essential oil; strongly levorotatory.
Use: In fragrances, perfumes, and flavoring.